

In the claims:Sub a3

1. An apparatus for dispensing a viscous material comprising:
a ^{tube (24)} ~~tubular nozzle~~ member having one end ^(24a) for receiving viscous material for passage ^(24b) through the nozzle member, a nozzle tip portion having an inner conical nozzle surface, and an axially extending main body tubular portion interconnecting said one end and the nozzle tip portion, the tubular nozzle member having an external surface with radially inwardly stepped reductions in dimension approaching an end of the nozzle tip portion providing guides for selectively cutting variable discharge opening sizes; and
dispensing means ⁽¹⁶⁾ engageable within the ^{tube} ~~tubular nozzle~~ member proximate the nozzle tip portion of the ^{tube} ~~nozzle~~ member and operative for discharging viscous material.
2. The apparatus of claim 1, wherein the dispensing means further comprises an interchangeable tip insert insertable into the tubular nozzle member, said tip insert having a smaller end aperture than the nozzle tip portion and extending beyond an end of the nozzle tip portion of the tubular nozzle member.
3. The apparatus of claim 2, wherein the tip insert has an inner surface with an entry point having an angular cut funnel shaped surface portion and a cylindrical surface portion.

Sub a4

4. An apparatus for dispensing a viscous material comprising:
a ^{tube member (24)} ~~hollow tubular housing~~ having a first end and a second end for carrying viscous material therebetween, and a nozzle-retaining surface adjacent one end of the tubular housing; and
a nozzle insert ⁽¹⁶⁾ engageable with the nozzle-retaining surface within the tubular housing, the nozzle insert having a non-linear axially extending inner surface defining a passage therethrough with an aperture of reduced dimension adjacent an

outlet end for discharging a viscous material from the tubular housing through the nozzle insert.

5. The apparatus of claim 4 further comprising:

the nozzle insert having a first aperture at one end and a second aperture at another end, wherein the first aperture is larger than the second aperture and is disposed opposite from the nozzle-retaining surface of the tubular housing, and a cylindrical passage portion adjacent the second aperture.

6. The apparatus of claim 4 further comprising:

a static mixer operably insertable within the hollow tubular housing for trapping the nozzle insert against the nozzle-retaining surface.

7. The apparatus of claim 4 further comprising:

the nozzle insert having a radially outwardly extending annular flange adjacent a first end, the radially outwardly extending annular flange engagable with the nozzle-retaining surface within the tubular housing.

8. The apparatus of claim 4 further comprising:

the nozzle insert having an inner surface with a beveled-angular cut adjacent a first end and having a cylindrical surface portion extending longitudinally at least partially between the first end and a second end of the nozzle insert.

sub a5

9. An apparatus for dispensing a viscous material comprising:

^{tube member (24)}
a hollow tubular housing having a first end and a second end for carrying viscous material therebetween, and a nozzle-retaining surface extending radially inwardly adjacent one end of the tubular housing; and

a nozzle insert having a radially outwardly extending annular flange adjacent a first end, the radially outwardly extending annular flange engagable with the nozzle-retaining surface within the tubular housing, the nozzle insert for discharging a viscous material from the tubular housing through the nozzle insert.

10. The apparatus of claim 9 further comprising:

the nozzle insert having a first aperture at one end and a second aperture at another end, wherein the first aperture is larger than the second aperture and is disposed opposite from the nozzle-retaining surface of the tubular housing, and a cylindrical passage portion adjacent the second aperture.

11. The apparatus of claim 9 further comprising:

a static mixer operably insertable within the hollow tubular housing and engageable with the radially outwardly extending annular flange of the nozzle insert for trapping the nozzle insert against the nozzle-retaining surface.

12. The apparatus of claim 9 further comprising:

the nozzle insert having at least a cylindrical surface portion of a passage extending axially therethrough with a first opening adjacent one end larger than a second opening adjacent an opposite end, and the nozzle insert extending beyond the one end of the tubular housing.

13. The apparatus of claim 9 further comprising:

the nozzle insert having an inner passage with a beveled-angular cut surface adjacent a first end and having a cylindrical portion extending at least partially between the first end and a second end of the nozzle insert.

Sub 4

14. An apparatus for dispensing a viscous material comprising:

^{tube (24)}
a ~~tubular~~ member having first and second ends, the second end having an internal insert-retaining surface, and an axially extending portion of the tubular member interconnecting said first and second ends; and

a nozzle insert engageable within the second end of the tubular member and extending outwardly beyond the second end of the tubular member for discharging viscous material.

15. The apparatus of claim 14 further comprising the nozzle insert being an interchangeable insert positionable within the second end of the tubular member against the internal inserting-retaining surface, the insert having a smaller aperture at an outer end than the second end of the tubular member.

16. The apparatus of claim 14 further comprising the nozzle insert having an axially extending passage therethrough, an entry portion of the passage having an angular surface in communication with a cylindrical surface extending along at least a portion of the passage.

17. The apparatus of claim 14 further comprising:
the nozzle insert having a first aperture at one end and a second aperture at another end, wherein the first aperture is larger than the second aperture and is disposed opposite from the insert-retaining surface of the tubular member.

18. The apparatus of claim 14 further comprising:
a static mixer operably insertable within the tubular member for trapping the nozzle insert against the internal insert-retaining surface.

19. The apparatus of claim 14 further comprising:
the nozzle insert having a radially outwardly extending annular flange adjacent a first end, the radially outwardly extending annular flange engagable with the internal insert-retaining surface within the second end of the tubular member.

20. The apparatus of claim 14 further comprising:
the nozzle insert having an inner passage with a beveled-angular cut portion adjacent a first end and having a cylindrical portion extending along at least partially between the first end and a second end of the nozzle insert.

add a 7 →